

Application Number 10/573,239  
Amendment dated June 23, 2008  
Response to Office action of March 24, 2008

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**Amendments to the Specification:**

This amended specification will replace all prior versions of the specification of the application.

**Specification:**

Please replace paragraph [0015] with the following amended paragraph:

[0015] Figure 1 shows t[[wo]]three embodiments of a tunnel diode device of the present invention.

Please replace paragraph [0018] with the following amended paragraph:

[0018] Embodiments of the present invention and their technical advantages may be better understood by referring to Fig. 1A, which shows in diagrammatic form a tunnel diode comprising a metal emitter 102, a collector 104, an external circuit 106 and a voltage source 108. The collector comprises a band gap material which is to be understood in the present disclosure to indicate a material in which there is a forbidden region between a lower valence band and an upper conduction band. The band gap material may be a semiconductor, such as Ge, Si, GaAs or SiC. The band gap material may be a heterostructured semiconductor, made from several thin layers of material with different band gaps. The layers can be anything from a few atoms in thickness right up to micrometer size and the materials used are typically gallium arsenide (GaAs) or aluminium gallium arsenide (AlGaAs). The band gap material may also be a material such as diamond or doped diamond. It also includes materials such as the alkali metal oxides or the alkaline earth oxides. Fig. 1B discloses another embodiment of the present invention, in which the band gap material 104 is deposited as a layer on metal collector 210 110. Fig. 1C discloses a further embodiment of the present invention in which metal emitter 102 is coated by a layer 104 of the same or different band gap material.